

WHAT IS CLAIMED IS:

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1. A white balance control apparatus  
comprising:

an evaluation value calculation circuit  
calculating and outputting evaluation values of color  
10 components of each of a plurality of regions of  
digital image data;

a luminance conversion part converting the  
evaluation values of each of the regions into a  
luminance value; and

15 a high-luminance weighting part converting  
the evaluation values of each of the regions into a  
base white balance control amount, calculating a non-  
weighted white balance control amount from the base  
white balance control amount and a weighted white  
20 balance control amount by performing weighting  
processing on the base white balance control amount  
by using the luminance value of each of the regions  
so that a region of higher luminance has a greater  
weight, and calculating a white balance control  
25 amount to be applied to the image data at a time of

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image recording by using the weighted and non-weighted white balance control amounts.

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2. The white balance control apparatus as claimed in claim 1, wherein said high-luminance weighting part obtains the weighted white balance control amount by dividing, by a sum of the luminance values of the regions, a sum of values obtained by multiplying the base white balance control amounts of the regions by the corresponding luminance values.

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3. The white balance control apparatus as claimed in claim 1, wherein said high-luminance weighting part calculates the non-weighted white balance control amount by averaging the base white control amounts of the regions.

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4. The white balance control apparatus as  
claimed in claim 1, wherein said evaluation value  
calculation circuit calculates the evaluation value  
of each of the color components of each of the  
5 regions by summing values of each of the color  
components of each of the regions.

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5. The white balance control apparatus as  
claimed in claim 1, wherein said evaluation value  
calculation circuit comprises said luminance  
conversion part.

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6. The white balance control apparatus as  
20 claimed in claim 1, wherein said high-luminance  
weighting part comprises said luminance conversion  
part.

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7. The white balance control apparatus as claimed in claim 1, further comprising a control part controlling an operation of the entire apparatus,

wherein said control part comprises said  
5 high-luminance weighting part.

10 8. The white balance control apparatus as claimed in claim 1, further comprising a white determination part determining whether a region is white based on the base white balance control amount of the region,

15 wherein said high-luminance weighting part calculates the weighted and non-weighted white balance control amounts based on the base white control amount and the luminance value only of regions determined to be white by said white  
20 determination part.

25 9. The white balance control apparatus as

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claimed in claim 8, wherein said high-luminance weighting part comprises said white determination part.

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10 10. The white balance control apparatus as claimed in claim 1, wherein said high-luminance weighting part employs a weighted average of the weighted and non-weighted white balance control amounts as the white balance control amount to be applied to the image data, the weighted average being obtained by using a parameter set to a desired value.

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20 11. A white balance control method comprising the steps of:

(a) calculating and outputting evaluation values of color components of each of a plurality of regions of digital image data;

25 (b) converting the evaluation values of each of the regions into a luminance value;

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(c) converting the evaluation values of each of the regions into a base white balance control amount;

(d) calculating a non-weighted white balance control amount from the base white balance control amount and a weighted white balance control amount by performing weighting processing on the base white balance control amount by using the luminance value of each of the regions so that a region of higher luminance has a greater weight; and

(e) calculating a white balance control amount to be applied to the image data at a time of image recording by using the weighted and non-weighted white balance control amounts.

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12. The white balance control method as claimed in claim 11, wherein said step (d) obtains the weighted white balance control amount by dividing, by a sum of the luminance values of the regions, a sum of values obtained by multiplying the base white balance control amounts of the regions by the corresponding luminance values.

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13. The white balance control method as  
claimed in claim 11, wherein said step (d) calculates  
the non-weighted white balance control amount by  
averaging the base white control amounts of the  
5 regions.

10 14. The white balance control method as  
claimed in claim 11, wherein said step (a) calculates  
the evaluation value of each of the color components  
of each of the regions by summing values of each of  
the color components of each of the regions.

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15. The white balance control method as  
20 claimed in claim 11, further comprising the step of  
(f) determining whether a region is white based on  
the base white balance control amount of the region,  
wherein said step (d) calculates the  
weighted and non-weighted white balance control  
25 amounts based on the base white control amount and

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the luminance value only of regions determined to be white by said step (f).

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16. The white balance control method as claimed in claim 11, wherein said step (e) employs a weighted average of the weighted and non-weighted  
10 white balance control amounts as the white balance control amount to be applied to the image data, the weighted average being obtained by using a parameter set to a desired value.

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17. An image pickup apparatus comprising:  
a control part controlling an operation of  
20 the entire image pickup apparatus;  
an image pickup part picking up an image of an object and converting data on the image into digital image data;  
a data processing part that processes the  
25 digital image data;

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an evaluation value calculation circuit  
calculating and outputting evaluation values of color  
components of each of a plurality of regions of the  
digital image data;

- 5           a luminance conversion part converting the  
evaluation values of each of the regions into a  
luminance value; and

- a high-luminance weighting part converting  
the evaluation values of each of the regions into a  
10   base white balance control amount, calculating a non-  
weighted white balance control amount from the base  
white balance control amount and a weighted white  
balance control amount by performing weighting  
processing on the base white balance control amount  
15   by using the luminance value of each of the regions  
so that a region of higher luminance has a greater  
weight, and calculating a white balance control  
amount to be applied to the image data at a time of  
image recording by using the weighted and non-  
20   weighted white balance control amounts.

- 25           18. The image pickup apparatus as claimed

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in claim 17, wherein said high-luminance weighting  
part obtains the weighted white balance control  
amount by dividing, by a sum of the luminance values  
of the regions, a sum of values obtained by  
5 multiplying the base white balance control amounts of  
the regions by the corresponding luminance values.

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19. The image pickup apparatus as claimed  
in claim 17, wherein said high-luminance weighting  
part calculates the non-weighted white balance  
control amount by averaging the base white control  
15 amounts of the regions.

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20. The image pickup apparatus as claimed  
in claim 17, wherein said evaluation value  
calculation circuit calculates the evaluation value  
of each of the color components of each of the  
regions by summing values of each of the color  
25 components of each of the regions.

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21. The image pickup apparatus as claimed  
in claim 17, wherein said evaluation value  
calculation circuit comprises said luminance  
conversion part.

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22. The image pickup apparatus as claimed  
10 in claim 17, wherein said high-luminance weighting  
part comprises said luminance conversion part.

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23. The image pickup apparatus as claimed  
in claim 17, wherein said control part comprises said  
high-luminance weighting part.

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24. The image pickup apparatus as claimed  
in claim 17, further comprising a white determination  
25 part determining whether a region is white based on

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the base white balance control amount of the region,  
wherein said high-luminance weighting part  
calculates the weighted and non-weighted white  
balance control amounts based on the base white  
control amount and the luminance value only of  
regions determined to be white by said white  
determination part.

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25. The image pickup apparatus as claimed  
in claim 24, wherein said high-luminance weighting  
part comprises said white determination part.

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26. The image pickup apparatus as claimed  
in claim 17, wherein said high-luminance weighting  
part employs a weighted average of the weighted and  
non-weighted white balance control amounts as the  
white balance control amount to be applied to the  
image data, the weighted average being obtained by  
using a parameter set to a desired value.

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27. The image pickup apparatus as claimed in claim 17, further comprising an image output part outputting the image of the object.